

ISIS Virtual Reflectivity Training Course

Report of Contributions

Contribution ID: 1

Type: **not specified**

Lecture 1: Introduction to reflectometry

Thursday, 23 April 2026 09:15 (45 minutes)

- Scattering theory
- Optical matrix
- Examples

Presenter: CLIFTON, Luke (STFC)

Session Classification: Morning Session

Contribution ID: 2

Type: **not specified**

Lecture 2: Reflectometry Deep Dive

Thursday, 23 April 2026 10:15 (45 minutes)

- Experimental design
- SLD calculation
- Dynamic range and resolution
- Isotopic Contrast
- Examples

Presenter: KINANE, Christy (STFC)

Session Classification: Morning Session

Contribution ID: 3

Type: **not specified**

Practical 1: Demonstration and first fitting

Thursday, 23 April 2026 11:30 (45 minutes)

NIST Online tool demo and fitting of RR sample

Presenter: SKODA, Maximilian (STFC)

Session Classification: Morning Session

Contribution ID: 4

Type: **not specified**

Lecture 3: Polarised Reflectometry - all you need to know

Thursday, 23 April 2026 13:30 (45 minutes)

Presenter: KINANE, Christy (STFC)

Session Classification: Afternoon Session

Contribution ID: 5

Type: **not specified**

Practical 2: PNR demonstration and first model

Thursday, 23 April 2026 14:30 (45 minutes)

NIST online demo and fitting - PNR/PA

Presenter: CARUANA, Andrew (STFC)

Session Classification: Afternoon Session

Contribution ID: 6

Type: **not specified**

Lecture 4: Data reduction

Friday, 24 April 2026 09:00 (50 minutes)

- Basic beamline set-up
- Virtual beamline tour
- Time-Of-Flight
- Data reduction in Mantid WorkBench

Presenter: SKODA, Maximilian (STFC)

Session Classification: Morning Session

Contribution ID: 7

Type: **not specified**

Practical 4: Data reduction with Mantid in IDAaaS

Friday, 24 April 2026 10:00 (1 hour)

- IDAaaS introduction
- Data access
- Data reduction steps
- Reflectometry interface

Presenters: SKODA, Maximilian (STFC); HALL, Stephen (STFC)

Session Classification: Morning Session

Contribution ID: 8

Type: **not specified**

Lecture 5: Data reduction II - Jupyter Notebook

Presenter: CARUANA, Andrew (STFC)

Session Classification: Morning Session

Contribution ID: 9

Type: **not specified**

Practical 5: Jupyter Notebook

Presenter: CARUANA, Andrew (STFC)

Session Classification: Morning Session

Contribution ID: **10**

Type: **not specified**

Lecture 5: An introduction to NR Beamlines and alignment

Friday, 24 April 2026 11:15 (45 minutes)

- Reflectometer components
- Sample alignment

Presenter: TOMCHUK, Oleksandr

Session Classification: Morning Session

Contribution ID: **11**

Type: **not specified**

Practical 5/6a: RasCAL in IDAaaS Demo

RasCAL fitting/error analysis demo and simple practical

Presenter: HALL, Stephen (STFC)

Session Classification: Afternoon Session

Contribution ID: **12**

Type: **not specified**

Lecture 6: Error analysis

Friday, 24 April 2026 14:30 (45 minutes)

- Why error analysis?
- Bayesian analysis
- Model selection

Presenter: CARUANA, Andrew (STFC)

Session Classification: Afternoon Session

Contribution ID: 13

Type: **not specified**

Practical 7a: RasCAL/IDAaaS error analysis demo

RasCAL error analysis demo

Presenter: HALL, Stephen (STFC)

Session Classification: Afternoon Session

Contribution ID: 14

Type: **not specified**

Lecture 7: Case study - Lipid Bilayers

- RasCAL revisited
- Building a model
- Custom models
- Fitting strategies and pitfalls
- Error analysis

Presenters: CLIFTON, Luke (STFC); SKODA, Maximilian (STFC)

Session Classification: Morning Session

Contribution ID: 15

Type: **not specified**

Practical 7: RasCAL Bilayer fitting

Monday, 27 April 2026 13:30 (2h 30m)

Building bilayer models

Presenters: CLIFTON, Luke (STFC); HALL, Stephen (STFC); SKODA, Maximilian (STFC); WELBOURN, Becky (STFC); CAMPANA, Mario (STFC)

Session Classification: Afternoon Session

Contribution ID: **16**

Type: **not specified**

Lecture 8: Case study - Polarised Reflectometry

- Measurement strategies
- Model definition
- Measurables (polarisation, spin-flip scattering, spin asymmetry)
- Error analysis

Presenters: CARUANA, Andrew (STFC); MARANVILLE, Brian; KINANE, Christy (STFC)

Session Classification: Afternoon Session

Contribution ID: 17

Type: **not specified**

Practical 8: Refl1D demo and exercises

Tuesday, 28 April 2026 09:00 (2h 30m)

- PNR
- PA
- Model Constraints

Presenters: CARUANA, Andrew (STFC); MARANVILLE, Brian; KINANE, Christy (STFC)

Session Classification: Morning Session

Contribution ID: **18**

Type: **not specified**

Lecture 9: Case study - Complex systems

- Introduction to RefNX
- Building a model in RefNX
- Custom models: mixed area, non-slab models ??
- Modelling roughness
- Fitting strategies and pitfalls
- Error analysis

Presenters: NELSON, Andrew; WELBOURN, Becky (STFC); COOPER, Jos (STFC); SKODA, Maximilian (STFC)

Session Classification: Morning Session

Contribution ID: **19**

Type: **not specified**

Practical 9: RefNX demo and excersises

- Complex models exercises

Presenters: NELSON, Andrew; COOPER, Jos (STFC); SKODA, Maximilian (STFC)

Session Classification: Morning Session

Contribution ID: 20

Type: **not specified**

Practical 10: TBC

TBC

Presenters: CARUANA, Andrew (STFC); HUGHES, Arwel (STFC); WELBOURN, Becky (STFC); COOPER, Jos (STFC); CLIFTON, Luke (STFC); SKODA, Maximilian (STFC); HALL, Stephen (STFC)

Session Classification: Afternoon Session

Contribution ID: **21**

Type: **not specified**

Closing remarks

- Closing remarks
- Group photo?

Presenter: SKODA, Maximilian (STFC)

Session Classification: Afternoon Session

Contribution ID: 22

Type: **not specified**

Practical 5/6b: Refl1D In IDAaaS Demo

Presenters: CARUANA, Andrew (STFC); KINANE, Christy (STFC)

Session Classification: Afternoon Session

Contribution ID: 23

Type: **not specified**

Practical 7b: Refl1D/IDAaaS error analysis Demo

Presenters: CARUANA, Andrew (STFC); KINANE, Christy (STFC)

Session Classification: Afternoon Session

Contribution ID: 24

Type: **not specified**

Welcome and introduction

Thursday, 23 April 2026 09:00 (15 minutes)

Presenters: CLIFTON, Luke (STFC); Dr SKODA, Maximilian (STFC)

Session Classification: Morning Session

Contribution ID: 25

Type: **not specified**

TBC - Complementary techniques??

Session Classification: Afternoon Session

Contribution ID: 26

Type: **not specified**

Lecture 6: An introduction to NR data fitting

Friday, 24 April 2026 13:30 (45 minutes)

- Fitting concepts
- Fitting tools
- Fitting pitfalls

Presenter: HALL, Stephen (STFC)

Session Classification: Afternoon Session

Contribution ID: 27

Type: **not specified**

Practical 7: RasCAL Bilayer fitting

Building bilayer models

Presenters: CLIFTON, Luke (STFC); HALL, Stephen (STFC); SKODA, Maximilian (STFC); WELBOURN, Becky (STFC); CAMPANA, Mario (STFC)

Session Classification: Morning Session

Contribution ID: **28**

Type: **not specified**

The NR experimental process

Monday, 27 April 2026 09:15 (30 minutes)

Presenter: CAMPANA, Mario (STFC)

Session Classification: Morning Session

Contribution ID: 29

Type: **not specified**

Lecture 9: RasCAL Demo

Monday, 27 April 2026 10:00 (1 hour)

Presenter: HUGHES, Arwel (STFC)

Session Classification: Morning Session

Contribution ID: **30**

Type: **not specified**

Lecture 9: Refl1D Demo

Monday, 27 April 2026 11:15 (1 hour)

Presenters: CARUANA, Andrew (STFC); KINANE, Christy (STFC)

Session Classification: Morning Session

Contribution ID: **31**

Type: **not specified**

Closing remarks

Tuesday, 28 April 2026 11:30 (30 minutes)

Presenter: Dr SKODA, Maximilian (STFC)

Session Classification: Morning Session